

chain nodes :

7 8 9 10 11 12 21 24 25 28 29 30 31 32 33 34 35 36 39 40

ring nodes :

1 2 3 4 5 6 13 14 15 16 17 18

chain bonds :

3-9 6-11 7-9 7-8 7-17 10-11 10-28 11-12 14-21 21-24 24-25 28-29
28-30 30-31 30-32 31-33 33-34 34-35 34-36 35-39 36-40

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 13-14 13-18 14-15 15-16 16-17 17-18

exact/norm bonds :

3-9 7-9 7-8 10-11 10-28 11-12 14-21 30-31 30-32

exact bonds :

6-11 7-17 21-24 24-25 28-29 28-30 31-33 33-34 34-35 34-36 35-39
36-40

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 13-14 13-18 14-15 15-16 16-17 17-18

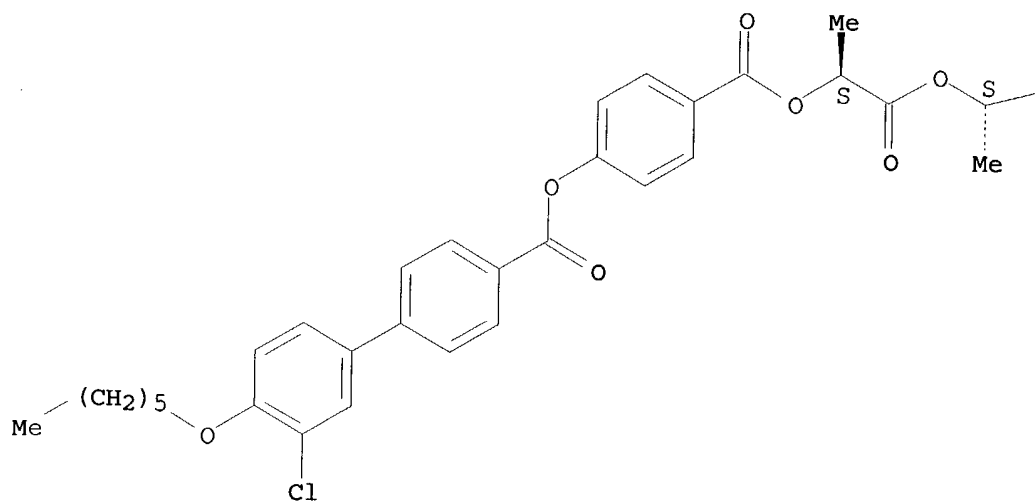
Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom
18:Atom 21:CLASS 24:CLASS 25:CLASS 28:CLASS 29:CLASS 30:CLASS
31:CLASS 32:CLASS 33:CLASS 34:CLASS 35:CLASS 36:CLASS 39:CLASS
40:CLASS

AN 2000:648640 CAPLUS
 DN 133:316204
 ED Entered STN: 17 Sep 2000
 TI New series of chiral smectic chlorinated liquid crystals
 AU Bubnov, Alexej; Hamplova, Vera; Kaspar, Miroslav; Glogarova, Milada; Venek, Premysl
 CS Institute of Physics, Academy of Sciences of the Czech Republic, Prague, 182 21/8, Czech Rep.
 SO Ferroelectrics (2000), 243(1-4), 27-35
 CODEN: FEROA8; ISSN: 0015-0193
 PB Gordon & Breach Science Publishers
 DT Journal
 LA English
 CC 76-8 (Electric Phenomena)
 Section cross-reference(s): 75
 AB Two series of ferroelec. liquid crystalline materials, containing a lateral chlorine group on the aromatic ring of the mol. core, have been synthesized and investigated. Sequences of mesophases and phase transition temps. have been determined for all substances. The temperature dependences of the complex permittivity and the spontaneous polarization were determined in the whole range of the ferroelec. SmC* phase. The substitution of chlorine increases the values of spontaneous polarization more than 5 times in comparison with non-chlorinated compds.
 ST ferroelec chiral smectic chlorinated liq crystal
 IT Dielectric constant
 Ferroelectric materials
 Phase transition
 Phase transition temperature
 Spontaneous dielectric polarization
 (preparation and properties of chiral smectic chlorinated ferroelec. liquid crystals)
 IT Liquid crystals
 (smectic; preparation and properties of chiral smectic chlorinated ferroelec. liquid crystals)
 IT 301854-56-8P 301854-57-9P 301854-58-0P
 301854-59-1P 301854-60-4P 301854-61-5P 301854-62-6P 301854-63-7P
 301854-64-8P 301854-65-9P 301854-66-0P 301854-67-1P 301854-68-2P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and properties of chiral smectic chlorinated ferroelec. liquid crystals)
 RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Chandani, A; Jpn J Appl Phys 1989, V28, PL1265 CAPLUS
 (2) Gorecka, E; Ferroelectrics 1996, V179, P81 CAPLUS
 (3) Kaspar, M; Liquid Crystals 1995, V19, P589 CAPLUS
 (4) Kaspar, M; Liquid Crystals 1998, V24, P599 CAPLUS
 (5) Tsai, W; Ferroelectrics 1993, V148, P121 CAPLUS
 IT 301854-56-8P 301854-57-9P 301854-58-0P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and properties of chiral smectic chlorinated ferroelec. liquid crystals)
 RN 301854-56-8 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 3'-chloro-4'-(hexyloxy)-, 4-[[[(1S)-1-methyl-2-[(1S)-1-methylpropoxy]-2-oxoethoxy]carbonyl]phenyl] ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



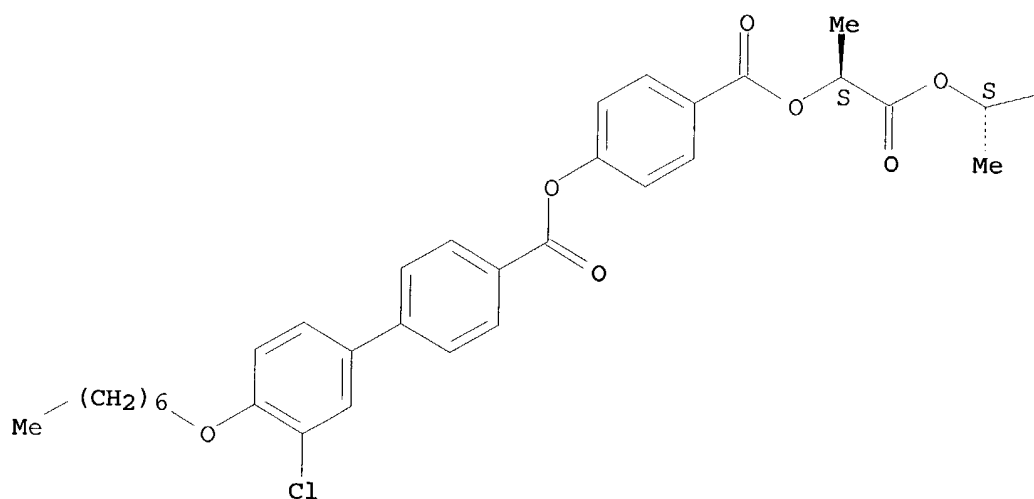
PAGE 1-B

Et

RN 301854-57-9 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 3'-chloro-4'-(heptyloxy)-,
4-[[[(1S)-1-methyl-2-[(1S)-1-methylpropoxy]-2-oxoethoxy]carbonyl]phenyl
ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

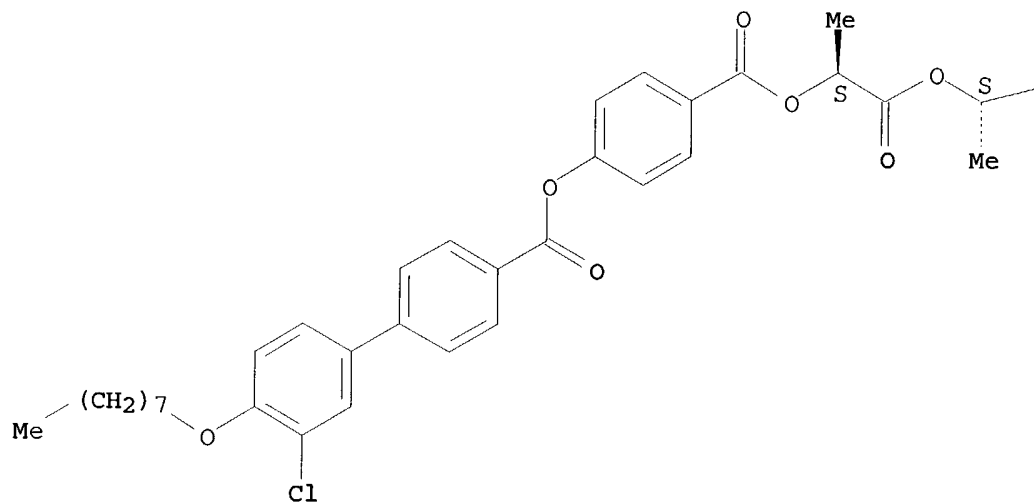
Et

RN 301854-58-0 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 3'-chloro-4'-(octyloxy)-,
4-[[[(1S)-1-methyl-2-[(1S)-1-methylpropoxy]-2-oxoethoxy]carbonyl]phenyl
ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

Et

AN 2003:198315 CAPLUS
 DN 139:157325
 ED Entered STN: 13 Mar 2003 ✓
 TI V-shaped switching in ferroelectric liquid crystal mixtures induced by an achiral swallow-tailed material
 AU Wu, S.-L.; Lin, C.-Y.
 CS 3rd Sec., Department of Chemical Engineering, Tatung University, Taipei, Taiwan, 104, Peop. Rep. China
 SO Liquid Crystals (2003), 30(2), 205-210
 CODEN: LICRE6; ISSN: 0267-8292
 PB Taylor & Francis Ltd.
 DT Journal
 LA English
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 75
 AB A new ferroelec. liquid crystal, 1-ethylpropyl (S)-2-[2-fluoro-4-(4'-decyloxybiphenylcarbonyloxy) benzoxyloxy] propanoate, F, was synthesized and mixed with an achiral swallow-tailed material, 2-propylpentyl 4-(4'-nonyloxybiphenyl-4-carbonyloxy) benzoate, P, for the preparation of binary mixts. for the study. The binary mixts. gave a phase sequence SmA*-SmC*-SmX*. The electro-optic response of the mixts. in the ferroelec. SmC* phase was investigated. V-shaped switching was observed as the amount of the achiral swallow-tailed material became greater than 20 wt %. This result suggests that thresholdless, V-shaped switching in ferroelec. liquid crystal mixts. can be achieved by mixing a ferroelec. liquid crystal with an achiral swallow-tailed compound
 ST V shaped switching ferroelec liq crystal achiral mixt
 IT Phase transition
 (V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)
 IT Liquid crystals
 (ferroelec.; V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)
 IT Ferroelectric materials
 (liquid-crystal; V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)
 IT Electrooptical effect
 (switching; V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)
 IT 570402-75-4P
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process)
 (V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)
 IT 570402-73-2P 570402-74-3P
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)
 IT 65145-13-3P, 2-Fluoro-4-hydroxybenzoic acid 90850-10-5P, 2-Ethylpropyl (S)-lactate 570402-70-9P 570402-71-0P 570402-72-1P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (synthesis of ferroelec. liquid crystal)
 IT 79-33-4, L-Lactic acid, reactions 112-29-8, 1-Bromodecane 405-04-9, 4-Cyano-2-fluorophenol 584-02-1, 3-Pentanol 1972-28-7, Diethyl azodicarboxylate 58574-03-1, 4'-Hydroxybiphenyl-4-carboxylic acid
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis of ferroelec. liquid crystal)
 IT 69367-32-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)

(synthesis of ferroelec. liquid crystal)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Booth, G; Liq Cryst 1996, V28, P815
- (2) Chandani, A; Jpn J appl Phys 1988, V27, PL729 CAPLUS
- (3) Chandani, A; Liq Cryst 1999, V26, P167 CAPLUS
- (4) Chin, E; Mol Cryst liq Cryst 1986, V141, P311 CAPLUS
- (5) Fukuda, A; Mol Cryst liq Cryst 1997, V303, P379 CAPLUS
- (6) Fukuda, A; Mol Cryst liq Cryst 1999, V328, P1 CAPLUS
- (7) Gary, G; Mol Cryst liq Cryst 1981, V67, P1
- (8) Inui, S; J mater Chem 1996, V6, P671 CAPLUS
- (9) Kaspar, M; Liq Cryst 2001, V28, P1203 CAPLUS
- (10) Lee, J; Jpn J appl Phys 1990, V29, P1122 CAPLUS
- (11) Miyasato, K; Jpn J appl Phys 1983, V22, PL661
- (12) Park, B; Jpn J appl Phys 1999, V38, P1474 CAPLUS
- (13) Rudquist, P; J mater Chem 1999, V9, P1257 CAPLUS
- (14) Seomun, S; Jpn J appl Phys 1997, V36, P3586 CAPLUS
- (15) Seomun, S; Jpn J appl Phys 1998, V37, PL691 CAPLUS
- (16) Seomun, S; Liq Cryst 1999, V26, P151 CAPLUS
- (17) Seomun, S; Mol Cryst liq Cryst 1997, V303, P181 CAPLUS
- (18) Wu, S; Chem Mater 1999, V11, P852 CAPLUS
- (19) Wu, S; Liq Cryst 2002, V29, P39 CAPLUS
- (20) Wu, S; Liq Cryst 2002, V29, P39 CAPLUS

IT 570402-75-4P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process)

(V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)

RN 570402-75-4 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]-3-fluorophenyl ester, mixt. with 3-fluoro-4-[[[(1S)-1-methyl-2-oxo-2-(1-propylbutoxy)ethoxy]carbonyl]phenyl 4'-(nonyloxy)[1,1'-biphenyl]-4-carboxylate (9CI) (CA INDEX NAME)

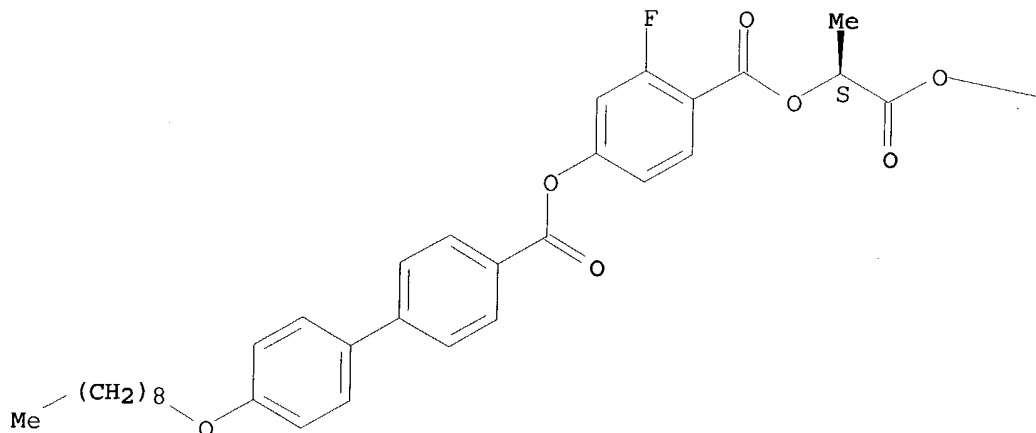
CM 1

CRN 570402-74-3

CMF C39 H49 F O7

Absolute stereochemistry.

PAGE 1-A



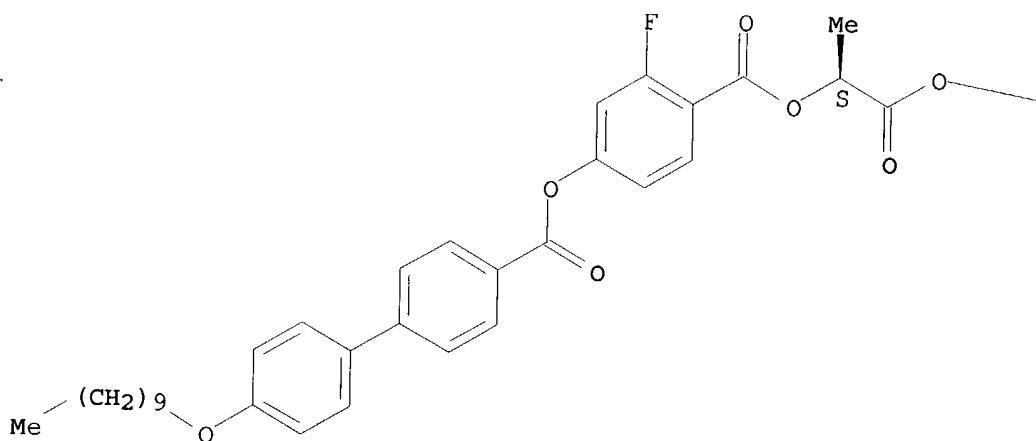
CH(Pr-n)₂

CM 2

CRN 570402-73-2
CMF C38 H47 F 07

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

CH₂Et₂

IT 570402-73-2P 570402-74-3P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

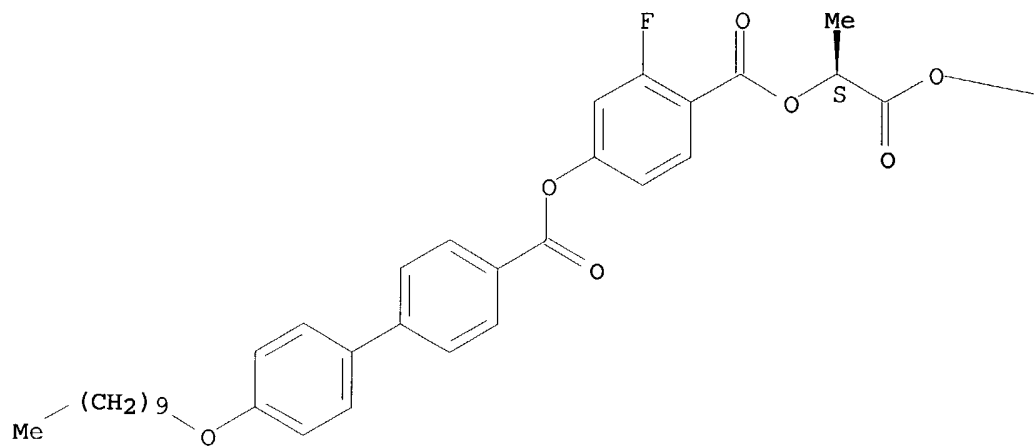
(V-shaped switching in ferroelec. liquid crystal mixts. induced by achiral swallow-tailed material)

RN 570402-73-2 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]-3-fluorophenyl ester (9CI)
(CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



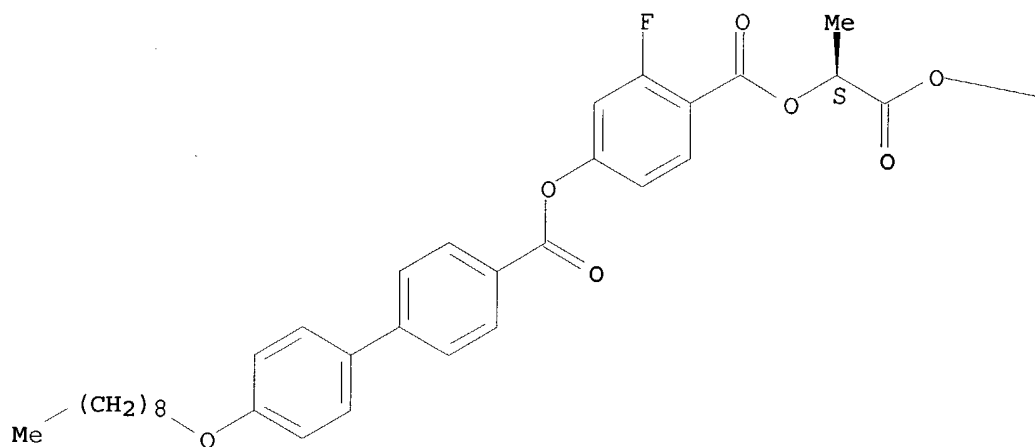
PAGE 1-B

CH₂Et₂

RN 570402-74-3 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(nonyloxy)-, 3-fluoro-4-[[1S]-1-methyl-2-oxo-2-(1-propylbutoxy)ethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

CH(Pr-n)₂

AN 2003:295966 CAPLUS
 DN 139:188651
 ED Entered STN: 17 Apr 2003
 TI Synthesis and ferroelectric properties of chiral swallow-tailed liquid
 crystals derived from (L)-lactic acid
 AU Wu, S.-L.; Lin, C.-Y.
 CS Department of Chemical Engineering, Tatung University, Taipei, 104, Taiwan
 SO Liquid Crystals (2003), 30(4), 471-477
 CODEN: LICRE6; ISSN: 0267-8292
 PB Taylor & Francis Ltd.
 DT Journal
 LA English
 CC 75-11 (Crystallography and Liquid Crystals)
 Section cross-reference(s): 25, 74, 76
 AB Three homologous series of chiral swallow-tailed materials derived from
 (L)-lactic acid were prepared. Structural effects on the mesomorphic and
 phys. properties were studied in terms of (i) the variation of nonchiral
 peripheral length chain, (ii) the variation of swallow-tailed groups and
 straight alkyl chain at the chiral tails, and (iii) lateral halogen
 substituents in the core of the mols. The mesophases and their
 corresponding transition temps. were identified by optical polarized
 microscopy and DSC. The phys. properties of the ferroelec. SmC* phases
 such as switching current, spontaneous polarization and electrooptical
 response were also measured and compared.
 ST chiral swallow tailed liq crystal lactic acid prepn ferroelec;
 electrooptical chiral swallow tailed liq crystal lactic acid
 IT Liquid crystals
 (chiral smectic C; preparation and properties of chiral swallow-tailed
 liquid
 crystals derived from lactic acid)
 IT Liquid crystals
 (chiral smectic; preparation and properties of chiral swallow-tailed liquid
 crystals derived from lactic acid)
 IT Molecular structure-property relationship
 (liquid-crystal; of chiral swallow-tailed compds. crystals derived from
 lactic acid)
 IT Electrooptical effect
 Ferroelectric switching
 Phase transition enthalpy
 (of chiral swallow-tailed liquid crystals derived from lactic acid)
 IT Homologous series
 (preparation and ferroelec. and liquid crystal properties of chiral
 swallow-tailed liquid crystals derived from lactic acid)
 IT Ferroelectricity
 (spontaneous polarization of chiral swallow-tailed liquid crystals
 derived from lactic acid)
 IT Liquid crystals
 (transitions; of chiral swallow-tailed liquid crystals derived from
 lactic acid)
 IT 14180-11-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (esterification of)
 IT 53676-04-3P 59748-18-4P 69367-31-3P 69367-32-4P 90850-10-5P
 121627-12-1P 578739-40-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and esterification of)
 IT 570402-73-2P 578739-41-0P 578739-42-1P
 578739-43-2P 578739-45-4P 578739-46-5P
 578739-47-6P 578739-48-7P 578739-49-8P
 578739-50-1P 578739-51-2P 578739-52-3P
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC
 (Process)

(preparation and ferroelec. and liquid crystal properties of chiral swallow-tailed compds. derived from lactic acid)

IT 578739-39-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and hydrolysis of)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Booth, C; Liq Cryst 1996, V20, P387 CAPLUS
- (2) Booth, G; Liq Cryst 1996, V28, P815
- (3) Buvnov, A; Mol Cryst liq Cryst 2001, V366, P547
- (4) Chandani, A; Jpn J appl Phys 1988, V27, PL729 CAPLUS
- (5) Chin, E; Mol Cryst liq Cryst 1986, V141, P311 CAPLUS
- (6) Colling, P; Introduction to Liquid Crystals Chemistry and Physics 1998, P70
- (7) Fukuda, A; J mater Chem 1994, V4, P997 CAPLUS
- (8) Hamplova, V; Mol Cryst liq Cryst 1999, V322, P181
- (9) Kaspar, M; Ferroelectrics 1993, V148, P103 CAPLUS
- (10) Kaspar, M; Liq Cryst 1995, V19, P775 CAPLUS
- (11) Kaspar, M; Liq Cryst 1997, V22, P557 CAPLUS
- (12) Kaspar, M; Liq Cryst 2001, V28, P1203 CAPLUS
- (13) Lee, J; Jpn J appl Phys 1990, V29, P1122 CAPLUS
- (14) Miyasato, K; Jpn J appl Phys 1983, V22, PL661
- (15) Parghi, D; Mol Cryst liq Cryst 1999, V332, P313
- (16) Wu, S; J mater Chem 1999, V11, P852 CAPLUS
- (17) Wu, S; Liq Cryst 2002, V29, P39 CAPLUS

IT 570402-73-2P 578739-41-0P 578739-42-1P

578739-43-2P 578739-45-4P 578739-46-5P

578739-48-7P 578739-49-8P 578739-50-1P

578739-51-2P 578739-52-3P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

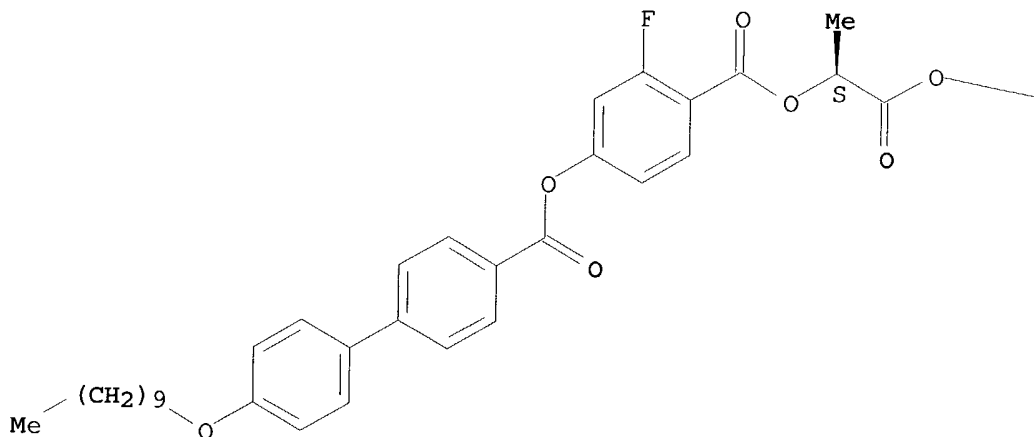
(preparation and ferroelec. and liquid crystal properties of chiral swallow-tailed compds. derived from lactic acid)

RN 570402-73-2 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]-3-fluorophenyl ester (9CI)
(CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A

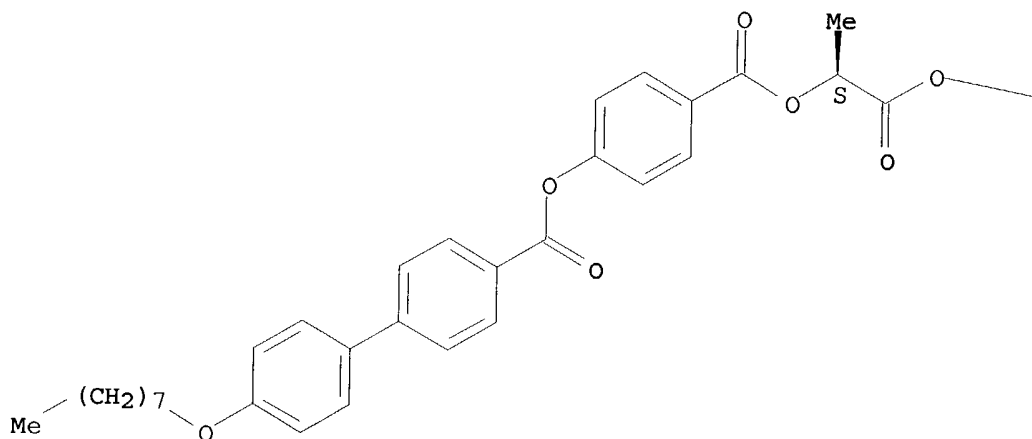


CH₂t₂

RN 578739-41-0 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(octyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



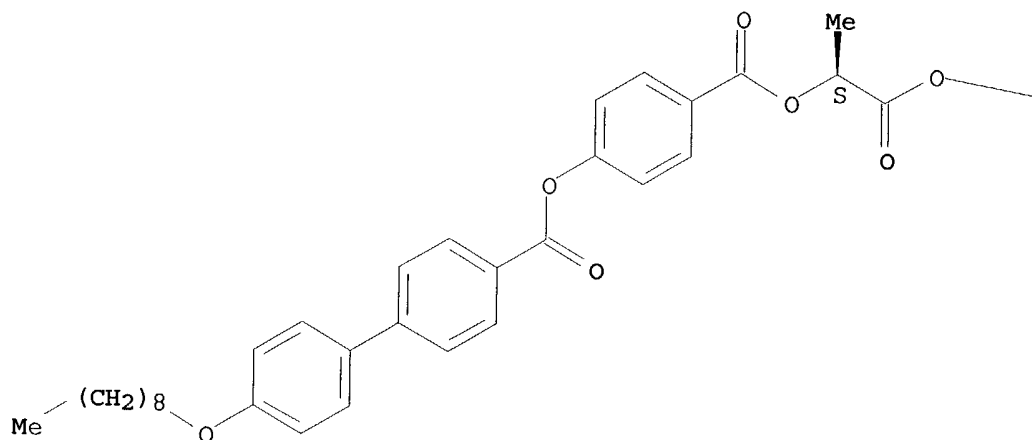
PAGE 1-B

CH₂t₂

RN 578739-42-1 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(nonyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



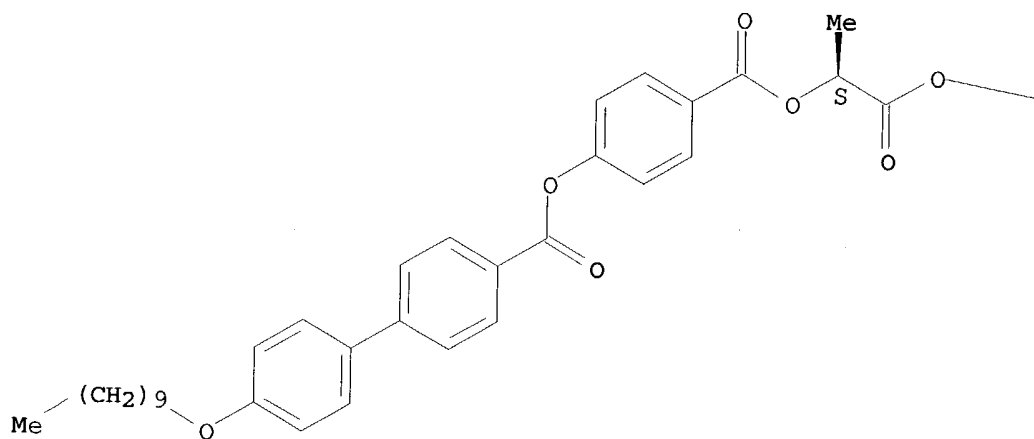
PAGE 1-B

CH₂t₂

RN 578739-43-2 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

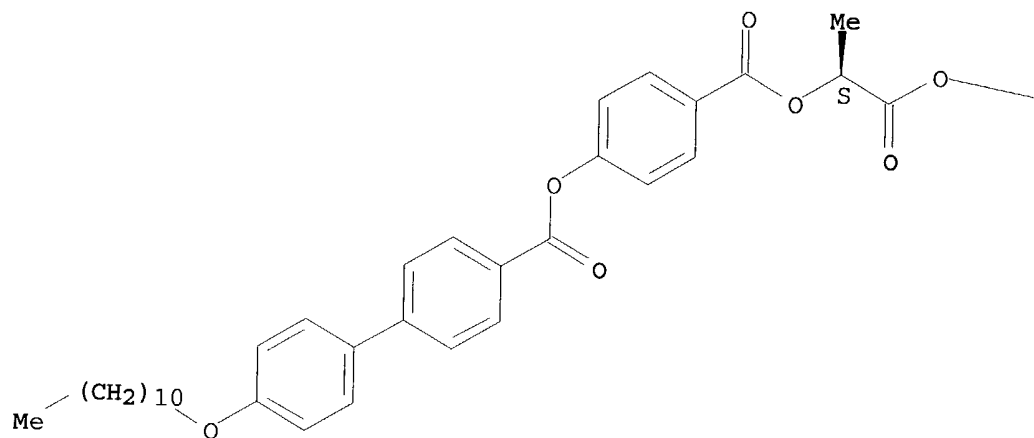
CH₂t₂

RN 578739-45-4 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(undecyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

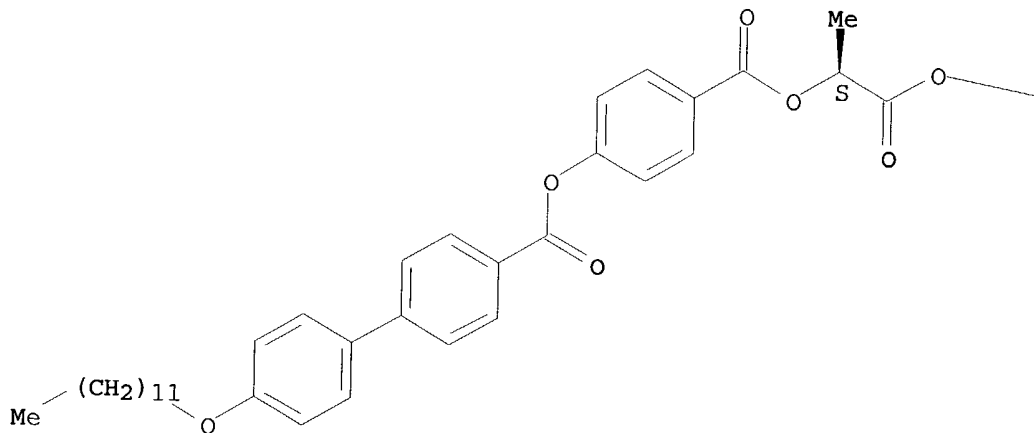
CH₂t₂

RN 578739-46-5 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(dodecyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



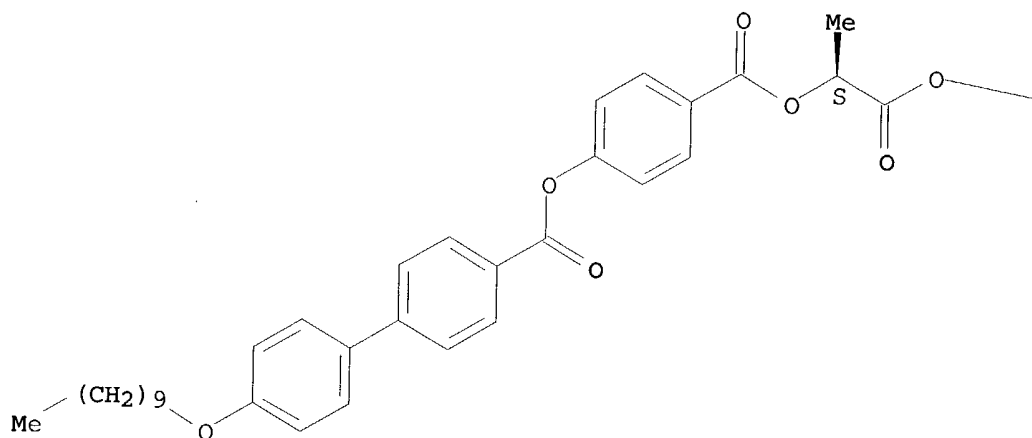
—CHEt₂

RN 578739-48-7 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 4-[[[(1S)-1-methyl-2-oxo-2-(1-propylbutoxy)ethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

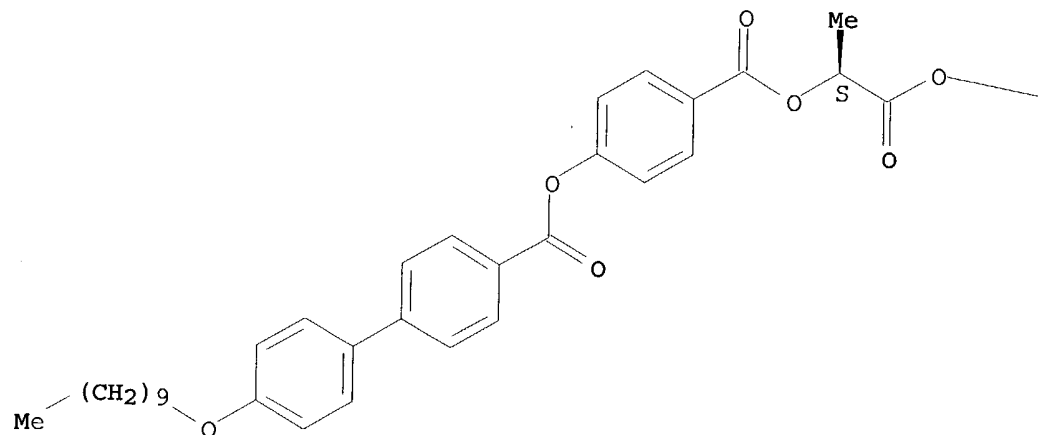
—CH(Pr-n)₂

RN 578739-49-8 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 4-[[[(1S)-2-[(1-butylpentyl)oxy]-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

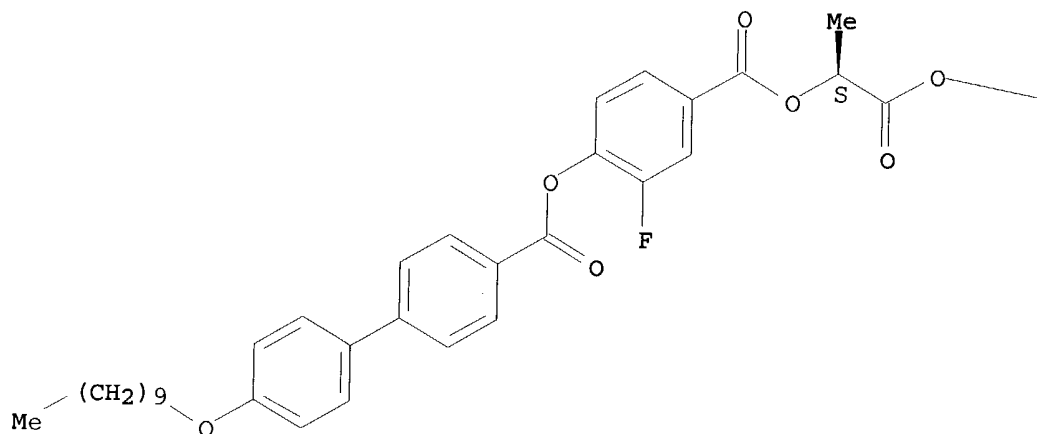
CH(Bu-n)₂

RN 578739-50-1 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]-2-fluorophenyl ester (9CI)
(CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



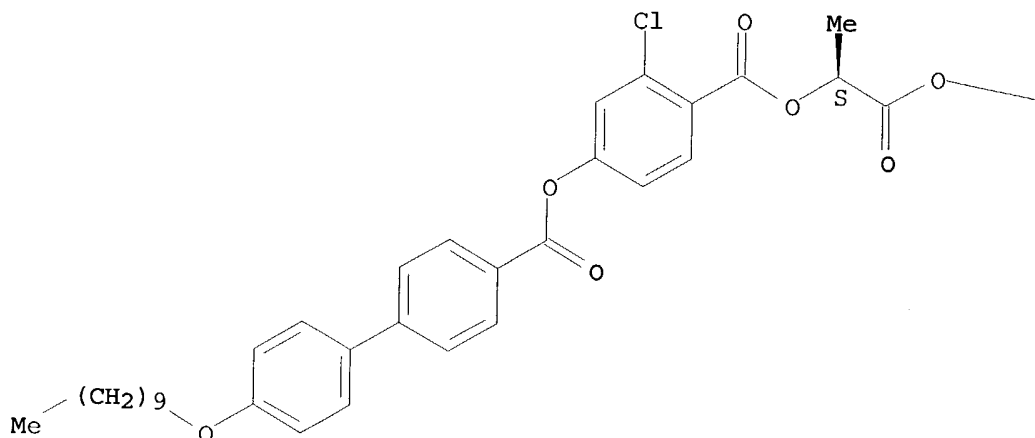
PAGE 1-B

CH₂Et₂

RN 578739-51-2 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 3-chloro-4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



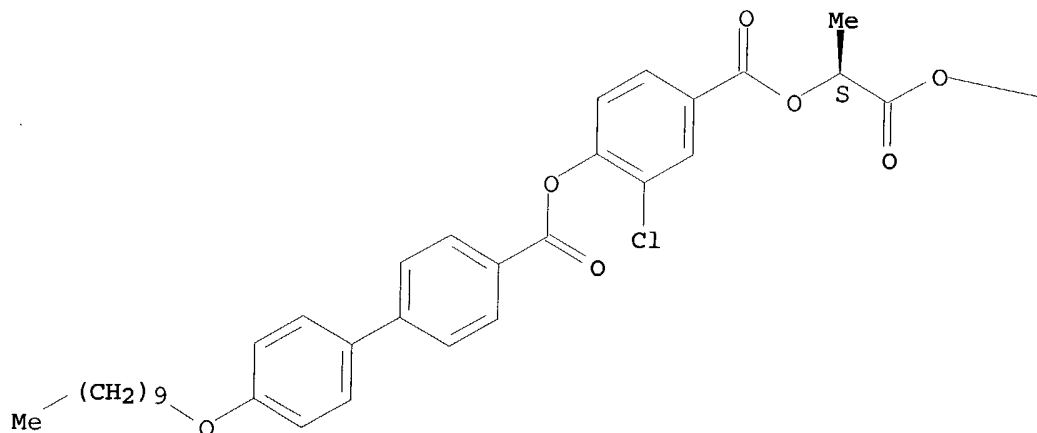
PAGE 1-B

CH₂Et₂

RN 578739-52-3 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(decyloxy)-, 2-chloro-4-[[[(1S)-2-(1-ethylpropoxy)-1-methyl-2-oxoethoxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

CHET2